National Manufacturing Institute Scotland:
Data Engineer

Centre	National Manufacturing Institute Scotland (NMIS) (https://www.nmis.scot/)		
Faculty	Faculty of Engineering (www.strath.ac.uk/engineering/)		
Staff Category	Knowledge Exchange	Reference No	455270
Reports To	The Data Analytics Theme Lead	Grade:	7
Salary Range:	£33,309 - £40,927	Contract Type:	Open Contract
FTE	1	Closing Date	18/07/2022

Job Advert

Who we are

The University of Strathclyde in Glasgow possesses a large internationally rated Engineering Faculty with a proud history of successful joint ventures with industrial and enterprise partners. As part of the University's strategic development the National Manufacturing Institute Scotland has been established.

The National Manufacturing Institute Scotland (NMIS) is a bold and ambitious industry-centred project to create an international centre of advanced manufacturing expertise and excellence where industry, academia and public-sector support agencies work together to transform skills, productivity and innovation, making Scotland and the UK a global leader in advanced manufacturing.

NMIS is delivered in partnership through Scottish Enterprise. NMIS is a truly collaborative project, with partners including the Scottish government, Scottish Enterprise, Highlands and Islands Enterprise, Skills Development Scotland, the Scottish Funding Council, Renfrewshire Council and the UK government through the High Value Manufacturing Catapult. The University of Strathclyde is the host University for NMIS, which will link to the wider academic communities in Scotland through the Scottish Research Partnership in Engineering and across the UK High Value Manufacturing Catapult network.

NMIS will encompass a dedicated facility that will house the Manufacturing Skills Academy (MSA), Digital Factory 2050 and the Innovation Collaboratory. Along with this dedicated new facility, existing and developing research centres will also be part of the broader NMIS Group including the Advanced Forming Research Centre (AFRC) and the Lightweight Manufacturing Centre (LMC). The posts advertised here will be based in one of these centres.

For more information, visit the National Manufacturing Institute Scotland (NMIS) Website:
https://www.strath.ac.uk/workwithus/nationalmanufacturinginstitutescotland/ or email NMIS-recruitment@strath.ac.uk

The Opportunity

Effective use of data will underpin the digital transformation of Scotland's manufacturing sector, but significant challenges remain before discrete/siloed data sources within enterprises (both large and SME) can be successfully harnessed. To address these challenges, NMIS seeks to appoint a Data Engineer to work between NMIS, the University and its industrial partners with a strong emphasis on knowledge exchange activities, including collaborative research and development. The Data Engineer will require research and/or technical experience in the following areas:

- Data acquisition from a variety of sources, including edge devices, data servers and industrial equipment.
- Unifying discrete data sources into consistent and usable formats for upstream analytics through API development.
- Analysis of raw data sources to improve data operation processes.
- Prototyping, development and maintenance of databases and data pipelines for manufacturing processes.
- Creation of dashboards and other visualisations to represent data movement throughout an industrial environment.

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- Collaboration with teams of data scientists, engineers and other technical experts.

You will support the delivery of research programmes on manufacturing data analytics, smart factory systems, digital transformation of industrial enterprises, and will be involved in academic research into one or more of these processes.

To be considered for this role, you will be educated to a minimum of PhD level in an appropriate discipline, i.e. Computer Science, Engineering or Mathematics or you will be educated to a minimum of 2:1 Honors degree in addition to significant relevant experience within a relevant industrial environment. . You will have an established track record in providing engineering solutions in an industrial or research context as well as experience of supporting research and development of manufacturing processes. You will be able to work autonomously, planning and prioritising your own workload with minimal guidance from a team/project leader, and you will have the ability to deal with complex problems presented to you by colleagues. You will have excellent communication and interpersonal skills, with a proven ability to interact with a range of stakeholders from industry and/or academia. You will have excellent troubleshooting skills, including a methodical approach to solve complex problems and you will be able to work as part of a multi-disciplinary team.

Job Description

Brief Outline of Job:

With guidance from the Data Analytics Theme Lead, to contribute to the delivery of engineering projects and take responsibility for the delivery of research outcomes. To undertake and support research and development relevant to the NMIS Data Analytics Theme (part of the Digital and Metrology Team) in the areas of data pipelines, data architectures, data visualization. databases and API development for smart factory systems. To contribute to the generation of proposals for creating research and commercial income that will enhance NMIS standing, capability and reputation. To deliver projects to time and within budget and provide project updates as required for the relevant Data Analytics Theme Lead, Digital and Metrology Team Lead, senior or programme management teams and customers/stakeholders. To support business development activity at NMIS by various means including sharing specialist/expert knowledge, hosting guests/tours and demonstrating NMIS capability.

Main Activities/Responsibilities:

1.	Conduct research and knowledge exchange activities in the area of data engineering for smart factory systems to underpin data analytics and decision support system development for manufacturing environments.
2.	Support the Data Analytics Theme Lead to develop data-driven decision support platforms for manufacturing based on connected data sources and efficient data operations.
3.	Plan and manage own workload, with minimal guidance from Theme/Team/Project Lead as required.
3.	Lead on developing data pipelines for manufacturing within collaborative research & development projects, including prototyping data engineering tools and frameworks to support the manufacturing community and academia.
4.	Propose and lead own research projects that support the remit of the Data Analytics Theme.
5.	Support industrial members through collaborative research and development projects, workshops and other knowledge exchange activities.
6.	Maintain operational effectiveness through continual awareness of the latest data operation frameworks and paradigms.
7.	Enhance NMIS manufacturing capability by enabling greater usage of manufacturing datasets and to better inform the Data Analytics Theme of appropriate tools and technologies appropriate for NMIS research aims.
8.	Prototype data engineering tools and frameworks to support internal NMIS teams, NMIS partners and external stakeholders in the manufacturing community.
9.	Identify opportunities for strategic development of new projects by building contacts internally and externally, across academic, industrial and governmental bodies and clusters.
10.	Disseminate research outcomes through reports, papers and presentation to technical and non-technical audiences at workshops, conferences and other KE events.
11.	Assist in the training and development of staff and external clients in manufacturing data engineering methods and processes. Participate in running successful CPD events and consultancy activity.
12.	Contribute to overall NMIS growth by working as an integral part of the NMIS team effort, inputting to the research programme, KE activities and capability development, as necessary, to meet strategic objectives.
13.	Engage in continuous professional development.

Person Specification

Educational and/or Professional Qualifications

(E=Essential, i.e. a candidate must meet all essential criteria to be considered for selection, D=Desirable)

E1 Good first degree (minimum class 2:1) in a relevant engineering, computer science, mathematical discipline, or equivalent relevant work experience.

E2 PhD in a relevant engineering, computer science or mathematical discipline or significant, relevant experience in a similar role

D1 Chartered Engineer/Scientist, Member of professional body in an appropriate discipline

Experience

E3 Knowledge of data types found in industrial applications, creating pipelines that combined multiple discrete sources and developing API's (REST, etc.) for accessing or transferring data

E4 Knowledge of creating and managing databases using SQL Server, MySQL, Oracle or similar database management systems

E5 Experience of programming languages Python and C++,

E6 Experience of working with remote servers (installation/management), edge devices, or similar industrial gateway devices

E7 Experience of the following analytics engines: Apache Spark or similar

D2 Experience in working with data lakes and edge devices

D3 Experience with any of the following programming languages: Rust, Java, Scala

D4 Experience with any of the following container orchestration platforms: Kubernetes, Openshift, Docker Swarm

D5 Experience of communication protocols and paradigms such as MQTT, global name spaces and publish/subscription data models

Job Related Skills and Achievements

E8 Demonstrable critical thinking and creative approaches to solving challenges found when accessing data from manufacturing systems

E9 Ability to work and collaborate in multi-disciplinary teams with diverse backgrounds to identify issues that can be addressed through data analytics

E10 Ability to communicate technical subjects and results to a wide audience, including team members, industrial partners, non-technical staff and other stakeholders

E11 Ability to take ownership of technical elements of projects and to lead data pipeline themed workshops with different stakeholders

D6 Experience of multi/inter-disciplinary knowledge exchange and research

Personal Attributes

E12 An inquisitive nature and genuine desire to understand the manufacturing domain that data pipelines will support to enhance operational effectiveness

E13 The ability to maintain a professional and collegiate approach in all situations

E14 The ability to manage a challenging workload autonomously and efficiently

Other Relevant Factors

E15 An interest in the latest developments related to data science, including new programming languages/libraries, data operations frameworks, relevant hardware & software and an interest in the wider research landscape of NMIS

Application Procedure

Applicants are required to complete an application form including the name of three referees who will be contacted without further permission, unless you indicate that you would prefer otherwise. Applicants should also submit a Curriculum Vitae and a covering letter detailing the knowledge, skills and experience you think make you the right candidate for the job. Applicants should also complete the Equal Opportunities Monitoring Form.

Other Information

Further information on the application process and working at Strathclyde can be found on our website (http://www.strath.ac.uk/hr/workforus).

Informal enquiries about the post can be directed to Dr Andrew Hamilton, Senior Research and Development Engineer (andrew.w.hamilton@strath.ac.uk/ 0141-534-5200).

Conditions of Employment

Conditions of employment relating to the Knowledge Exchange staff category can be found at: Conditions of Employment.

Rewards and Benefits

Our staff have access to a wide range of outstanding benefits that include financial rewards, family friendly and wellbeing benefits and career development opportunities, details of which can be found here.

Probation

Where applicable, the successful applicant will be required to serve a 9 month probationary period.

Pension

The successful applicant will be eligible to join the Universities' Superannuation Scheme. Further information regarding this scheme is available from Payroll and Pensions.

Relocation

Where applicable, the University offers a relocation package to support new employees who meet the eligibility criteria. The relocation package is offered as a contribution towards costs incurred, and is designed to be flexible, allowing staff to use the financial support available in the way that will be most helpful to them. Further details are outlined in the Relocation Policy.

Equality and Diversity

We value diversity and welcome applications from all sections of the community.

The University currently holds a Bronze Athena SWAN award, recognising our commitment to advancing gender equality in academia across all academic disciplines and professional and support functions.

University Values

The University's Values capture what we're all about: who we are, what we believe in and what we stand for. Our Values have been derived from how we act and how we expect to be treated as part of Strathclyde.